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Title : SEASONAL SHIFT IN THE GULF OF CALIFORNIA FIN WHALE DIET CONFIRMED BY STABLE NITROGEN ISOTOPE

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Abstract : Fin and blue whales both feed on euphausiids during their winter in the Gulf of California. Preliminary skin biopsy stable Nitrogen (N) isotope signatures, however, had indicated that fin whale skin is more enriched in heavy isotopes. The lighter blue whale values may be partially explained by their migration to higher latitudes in summer. The fin whale, however, is a year-round resident of the Gulf, and must shift to other prey following the decline in euphausiids during the summer. To clarify the feeding patterns of the fin whale, we undertook more comprehensive stable isotope analyses. During monthly field trips between January 2001 and June 2002 in the southwestern Gulf of California, surface-tow samples of euphausiids (Nyctiphanes simplex) were collected and skin biopsies were taken from 19 fin whales, in conjunction with photo-identification. No significant seasonal difference was found for $\delta^{13}C$ in fin whale skin. However, during the cold season, the $\delta^{15}N$ values showed a 2.1 ‰ increase, between N. simplex (12.6 ± 0.14 ‰) and the fin whale skin (14.6 ± 0.95 ‰), as expected if the former is the main food source of the latter. An additional statistical significant increase of 1.4 ‰ was found between $\delta^{15}N$ from skin collected in the warm season (16.1 ± 0.35‰) and skin collected during cold season (14.6 ± 0.95 ‰). The same shift in $\delta^{15}N$ for one fin whale that was sampled in both seasons (based on photo-recapture) strengthens this conclusion.